The Early Stages of Two Species of Yponomeutidae

By A. M. Emmet*

(1) *Paraswammerdamia spiniella* (Hübner) (*caesiella* auct.). On the 9th September, 1972 I collected some leaves of blackthorn (*Prunus spinosa*) at Thorpeness, Suffolk, which contained short, vacated gallery mines. On referring to Hering (*Bestimmungstabellen der Blattminen von Europa*), I keyed them out as "*Bucculatrix* sp.", labelled them accordingly for my herbarium and forgot all about.

On the 12th of October, 1975 I was at Benfleet, Essex with my wife and Paul Johnson when we came across similar mines, but this time they were tenanted by larvae of a light reddish brown colour. Again they keyed out beyond doubt as Hering's "*Bucculatrix* sp.", but we began to suspect his identification.

My larvae were picked in loose leaves. On quitting their mines, some made fresh mines in another leaf while others spun minute, white cocoons, choosing for this purpose the crack between the walls and the lid of the round plastic box in which they were housed, effectively preventing me from lifting the lid without rupturing the cocoons. The cocoons were reminiscent of *Bucculatrix* moulting cocoons, but oval and not round and the larvae within they lay straight and not bent in a semicircle. They did not much resemble the pupation cocoons of *Bucculatrix* either, since they were too small, unribbed and constructed with a single spinning: *Bucculatrix* larvae spin a cocoon within a cocoon and the outer one becomes ribbed through the shrinkage of the silk of the inner cocoon attached to it. I learnt nothing from my cocoons and it was Paul who discovered where they were constructed in nature. After giving his larvae fresh food on a spray, he found, when he looked later, that they had all disappeared. Then he noticed the little white cocoons spun in the angle above axial buds or, less commonly, at the junction of twigs. This information made the collection of cocoons in the field a possibility and, when we returned to Benfleet, these white pinpoints proved easy to find since we knew where to look.

On a visit to the British Museum (Natural History), I consulted the Hering herbarium and looked at the mines on which his entry of "*Bucculatrix* species" was based. These had been collected in Brittany by H. Buhr in 1943 and were in all details similar to our mines. By this time I had found the cocoons in several localities and was firmly of the opinion that they were not an unknown species of *Bucculatrix* at all but an early stage of a common species such as *P. spiniella*. I stated this view when I exhibited the mines and cocoons at a meeting of the British Entomological and Natural History Society. To test this theory, at the B.E.N.H.S. post-exhibition field meeting on the 2nd of November at Wicken Fen several entomologists collected further examples, principally in the cocoon form,

* Labrey Cottage, Victoria Gardens, Saffron Walden, Essex.

though one or two larvae were still feeding at that late date.

I successfully overwintered my cocoons out of doors and in the spring the larvae recommenced feeding on blackthorn. It was soon clear that my surmise that the larvae were *P. spiniella* was correct and the first adult, settling the matter beyond doubt, emerged on the 19th of May, 1976. Both Paul Johnson and Messrs. G. J. and R. J. James, who had been at the Wicken Fen meeting, corroborated the determination. If it had not been for Paul's acute observation it is unlikely that we would have solved this riddle. Those who possess Hering may now delete "*Bucculatrix* sp." under entry No. 4057 and substitute "*Paraswammerdamia spiniella* (Hübner)".

(2) *Scythropia crataegella* (L.). In September, 1975, Mr. John Heath sent me some mines in leaves of hawthorn (*Crataegus monogyna*) of a species which was occurring abundantly in a hedge near his home at St. Ives, Huntingdonshire. These were readily determined as *S. crataegella.* The larvae continued mining for a while and later fed externally in a communal web. Next they returned as miners into the now withering leaves where they spun round overwintering cocoons in which they rested in a semi circle, like *Tischeria ekebladella* (Bjerkander) in its cocoon in an oak leaf. I sleeved the mines out for the winter on a hawthorn hedge. Feeding began again in mid-April with the larvae once more mining the young leaves. As soon as they grew too big for their mines, they continued feeding in a communal web as described in the text books. An unusual feature is that the larvae, having ceased to mine in the autumn, should become miners again, both for their hibernation quarters and, later, for their early spring feeding.

For both these species, our textbooks describe only the post-hibernation feeding in a communal web. There is a difference between them. *S. crataegella* is gregarious all its larval life and often several construct their overwintering cocoons in the same leaf. *P. spiniella,* on the other hand, is solitary during hibernation and the larvae join forces only through chance encounter in the spring; a smaller larva will avail itself of the web made by a larger one if it happens to come across it.

P. spiniella was not the only species found overwintering under white silk in chinks and angles of blackthorn bark at Benfleet. Three larvae of *Nola cucullatella* (L.) were also collected, having been mistaken at the time for *P. spiniella.* Careful examination, however, reveals the difference; whereas *P. spiniella* spins a substantial cocoon for its winter quarters, *N. cucullatella* is content with a flimsy roof of silk. Both species recommenced feeding out of doors in mid-April as soon as the new leaves appeared. Having been brought inside, the *N. cucullatella* larvae fed up quickly and produced imagines on the 25th, 26th and 27th of May. The quest for these hibernating larvae is a practical proposition for the macro-lepidopterist seeking occupation during the lean winter months.